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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,992	06/25/2003	Dan Daeweon Cheong	356828001US1	4507

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EXAMINER

MARKHAM, WESLEY D

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,992

Applicant(s)

CHEONG, DAN DAEWEON

Examiner

Wesley D. Markham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed by the applicant on 3/28/2005, in which Claim 36 was amended. **Claims 24 – 44** are currently pending in U.S. Application Serial No. 10/606,992, and an Office action on the merits follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The rejection of Claim 36 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in light of the applicant's amendment to change the dependency of Claim 36 (e.g., from Claim 24 to Claim 29), thereby clarifying the antecedent basis issue raised by the examiner in the previous Office action (i.e., the non-final Office action mailed on 12/27/2004).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 24 – 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of McKee et al. (USPN 5,906,857) for the reasons set forth in the previous Office action.

Response to Arguments

6. Applicant's arguments filed on 3/28/2005 have been fully considered but they are not persuasive.
7. Regarding the 35 U.S.C. 103(a) rejection based on the combination of Velthaus et al. and McKee et al., the applicant argues that Velthaus et al. is silent as to the provision of coating rate monitors that are shielded from one another at each source to achieve the desired stoichiometry for the deposited phosphor composition. In response to applicant's arguments against the references individually, one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Additionally, please note that independent Claim 24 does not require coating rate monitors that are shielded from one another at each source to achieve the desired stoichiometry for the deposited phosphor composition, as the applicant appears to imply. Claim 24 is broadly open to using the temporal variation (e.g., in the deposition of thin film components) for controlling the first and second sources so as to obtain homogeneous temporal deposition of the composition on the

substrate – no mention is made of shielded coating rate monitors at each source or a phosphor composition.

8. Second, the applicant argues that McKee et al. teaches using shutters to control emission parameters of material vaporized from a source or sources. Monitors are used to determine how long the shutters for the sources should be left open, and the purposes of the rate monitors and shutters in McKee et al. are to meter out pulses of evaporant sequentially (emphasis by applicant) so as to control sequentially deposited layers of different composition one atom thick on the substrate to form a heterogeneous film. The applicant states that McKee et al. does not monitor temporal variation for controlling the sources as presently claimed, but rather acts to control the opening and closing of the shutters. In other words, the claimed temporal variation is used to control and adjust the vapor deposition of each of the sources to obtain homogeneous temporal deposition of the composition, which is not taught or suggested by McKee et al. In response, this argument is not convincing. The applicant's argument is premised on an overly narrow interpretation of the teachings of McKee et al. (i.e., that McKee et al. teaches using shutters to control emission parameters of material vaporized from a source or sources. Monitors are used to determine how long the shutters for the sources should be left open, and the purposes of the rate monitors and shutters in McKee et al. are to meter out pulses of evaporant sequentially (emphasis by applicant) so as to control sequentially deposited layers of different composition one atom thick on the substrate to form a heterogeneous film). Please note that a reference is not limited to preferred or

exemplary embodiments and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art (MPEP 2123). In this case, McKee et al. explicitly teaches using the deposition rate monitors to detect the variances in the output of vapor from the sources so that adjustments can be made to the temperature of the sources, etc. to compensate for such variances (Col.10, lines 42 – 65, Col.7, line 65 – Col.8, line 12). As such, McKee et al. monitors the temporal variation for controlling the sources, as claimed by the applicant.

Additionally, McKee et al. is not limited to sequentially forming thin layers of different composition, as argued by the applicant. McKee et al. also teaches depositing multiple materials in a single layer (Col.13, lines 43 – 60) through a system enabling the growth of stoichiometric compounds with greater accuracy and control over the growth process, thereby promoting uniformity of growth of the deposited materials (Col.2, lines 15 – 22).

9. Third, the applicant argues that the Office action does not identify where in either reference one of ordinary skill in the art would find the motivation to combine the references. In response, this argument is not convincing. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation is clearly present in the

teachings of the prior art references. As set forth by the examiner in the previous Office action, McKee discloses that providing evaporation rate monitors at multiple evaporation sources, the monitors being shielded from one another, monitoring the evaporation during deposition of multicomponent films on the substrate, and controlling the temperature of the sources along with using a shutter system provides a more rapid response than controlling flux by temperature alone and also provides a more uniform film (see the portions of McKee cited in the previous Office action). This teaching would have clearly motivated one of ordinary skill in the art to use the monitoring and control system of McKee to control the evaporation of Velthaus in order to achieve a quicker response and improved film uniformity than can be achieved using only temperature control (i.e., the control taught by Velthaus).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kimura (USPN 5,183,510) teaches depositing a multi-component (e.g., quaternary) thin film by vapor deposition in which each source material is isolated from each other source material. Kanda et al. (USPN 5,089,104) teaches depositing a multi-component (e.g., quaternary) thin film by vapor deposition in which the temporal variation in the deposition is used to independently control each of the multiple sources so as to achieve the proper composition ratio. Nire et al. (USPNs 5,670,207 and 5,133,988) teaches vapor depositing multi-component thin phosphor films while independently controlling the temperature of each of a plurality of sources. Goedicke et

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al. (USPN 5,750,185) teaches depositing a multi-component thin film while measuring the X-radiation emitted from the evaporant in order to control the parameters of the evaporation process. Shimoyama et al. (USPN 5,372,837) teaches depositing a multi-component thin phosphor film by vapor deposition in which in which the temporal variation in the evaporated material is monitored and used to control a plurality of evaporant sources individually.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

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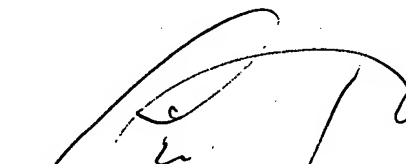
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WDM

Wesley D Markham
Examiner
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TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER